

## **FACT SHEET**

**Northeast Energy Associates  
92 Depot Street  
Bellingham, MA**

**Draft Prevention of Significant Deterioration (“PSD”) Permit**

April 9, 2014

On December 8, 2011, Northeast Energy Associates, LP (“NEA”), submitted an application to the Massachusetts Department of Environmental Protection (“MassDEP”) requesting a revision to NEA’s facility at 92 Depot Street in Bellingham, Massachusetts. On 6/6/2012, NEA provided supplemental information to address a Statement of Deficiency. The application is to change the existing gas-fired startup/shutdown carbon monoxide (“CO”) pound per million British thermal units (“lb/mmBtu”) limit in order to properly characterize existing natural gas-fired startup emissions. The existing gas-fired startup/shutdown volatile organic compound (“VOC”) lb/mmBtu limit is also being revised because it is calculated using the CO limit. The application is not associated with any physical or operational changes at the facility.

As part of the permitting effort that concluded with the 12/23/2008 PSD Permit #CR-88-PSD-R-001: (1) startup/shutdown emission limits in units of lb/mmBtu were first introduced, (2) the pre-existing startup/shutdown CO emission limit of 1,000 pounds per hour (“lb/hr”) was reduced to 132 lb/hr and (3) a base load ISO (“BI”) correction to nitrogen oxides (“NOx”) and CO continuous emission monitoring systems (“CEMS”) data was removed from the permits.

The existing gas-fired startup/shutdown CO lb/mmBtu emission limit of 0.113 lb/mmBtu was mistakenly deemed acceptable by the facility based on a review of historical BI-corrected data. After the BI correction was no longer applicable, it became apparent from the un-corrected CEMS data that a revised CO lb/mmBtu startup/shutdown concentration-based limit is required. No change is proposed for the corresponding mass-based limit of 132 lb/hr (equivalent to the steady state limit).

In a letter dated 10/14/2010, NEA submitted a CO lb/mmBtu gas-fired startup data analysis to support a corresponding new limit of 0.183 lb/mmBtu that, unlike the existing limit, is based on a representative data set. To be consistent with the data set and proposed limit revision, NEA also requested an alternative limit of 1.2 lb/mmBtu applicable only to instances where a combustion turbine does not operate for at least 120 consecutive minutes.

The VOC startup/shutdown gas-fired limit is therefore also changing from 0.0086 lb/mmBtu to 0.0153 lb/mmBtu ( $0.113 \text{ lb/mmBtu CO}_{\text{startup}} / 0.0516 \text{ lb/mmBtu CO}_{\text{steady-state}} \times 0.0043 \text{ lb/mmBtu VOC}_{\text{steady-state}} = 0.0153 \text{ lb/mmBtu VOC}_{\text{startup}}$ ) on the basis that the two pollutants are correlated. This approach was taken by the Environmental Protection Agency (“EPA”) for the 12/23/2008 PSD Permit since no actual VOC startup data was available. NEA does not have a VOC CEMS and therefore it is impracticable to have an alternative limit to address instances where a combustion turbine does not operate for at least 120 consecutive minutes.

MassDEP is proposing to approve NEA’s applications and has drafted modifications to the existing PSD permit to reflect NEA’s request. MassDEP’s permit decisions are based on the information and analysis provided by the applicant and the Department’s own technical expertise. MassDEP is authorized to revise the PSD Permit since Massachusetts was delegated the PSD program in an agreement executed on 4/11/2011.

## I. Applicant

Northeast Energy Associates, LP  
92 Depot Street  
Bellingham, MA 02019

## II. Project Location

NEA Bellingham is located in Bellingham, MA in Norfolk County. This location is currently designated as attainment/unclassified for the following national ambient air quality standards ("NAAQS") pollutants: ozone ("O<sub>3</sub>"), nitrogen dioxide ("NO<sub>2</sub>"), sulfur dioxide ("SO<sub>2</sub>"), CO, particulate matter ("PM"), and lead ("Pb"). However, all of Massachusetts is regulated as nonattainment for ground level ozone, the precursors of which are NO<sub>x</sub> and VOC. This is because 310 Code of Massachusetts Regulations ("CMR") 7.00: Appendix A, still retains non-attainment provisions for O<sub>3</sub> precursors. NO<sub>x</sub> and VOC are also regulated under the PSD provisions since Bellingham (as noted) are currently designated as attainment for O<sub>3</sub>.

## III. Facility Description

The power generating Facility consists of two Westinghouse Model No. W-501DS combustion turbines ("CTs") each with an unfired heat recovery steam generator containing a high-pressure vessel and a low-pressure vessel. The high-pressure steam is directed to a single steam turbine ("ST") to generate additional energy and the low-pressure steam is for steam injection for NO<sub>x</sub> control.

Auxiliary systems to the main equipment include an air-cooled steam condenser, a high voltage switchyard, a 2.3 million gallon fuel oil storage tank and a water storage tank.

The two CTs are Westinghouse Model W-501D5's rated at 111 megawatts ("MW") each. Each CT contains 14 Westinghouse Model DF42 mechanical atomizing burners. The turndown ratio of each is 20 to 1. Total electrical output from the gas combustion turbines under base load design conditions is 222 MW.

Combustion gases from each of the CTs are directed to a heat recovery steam generator ("HRSG"). At the CT base load design conditions, steam is produced in each HRSG at a rate of 690,000 lb/hr at 900 pounds per square inch gauge ("psig") (and 168,100 lb/hr at 70 psig). The high-pressure steam from both HRSG's is directed to the ST.

The ST under base load design conditions generates 82 MW of electric power. Combining this with the electrical output from the CT's the total electrical production for the Facility is 304 MW. An electrical switchyard includes transformers to step up the 13.8 Kilovolt ("KV") generator voltage to the 345 KV transmission voltage.

Fuel for the Facility is natural gas and Ultra Low Sulfur Fuel Oil (“ULSF”). The natural gas is delivered via a natural gas pipeline that traverses the site. ULSF is transported to the Facility by tank car along the railway bed, which presently traverses the site, and/or by tank trucks. The ULSF is stored in a 2.3 million gallon storage tank.

The emissions from the Facility are emitted to the ambient air through a reinforced concrete stack the top of which is 190 feet above ground level and has an inside exit diameter of 25 feet. Stack exit parameters vary with ambient temperature and load. Under base load design conditions, the expected stack gas exit parameters are 58 feet per second and 208 degrees Fahrenheit (“°F”) when burning natural gas, and 65 feet per second and 294°F when burning ULSF.

The Facility uses steam injection to control the emissions of NO<sub>x</sub>. Steam is injected into the turbine combustors to lower the flame temperature and reduce the formation of NO<sub>x</sub> to lowest achievable limits while utilizing natural gas or ULSF.

#### IV. Emission Projection

The project will not trigger PSD major modification thresholds since NEA’s current application is not associated with any physical or operational changes at the facility.

#### V. BACT Analysis

NEA’s current application is not associated with any physical or operational changes at the facility. As a result, there is no need to update the previous Best Available Control Technology (“BACT”) determinations made by MassDEP for this facility.

#### VI. Modeling Analysis

No modeling is required since there is no physical or operational change to the facility. Since the proposed permit revisions do not alter any emission limitation that was used in the original PSD permit’s air quality modeling analysis, the prior analysis carried out for the permit remains applicable. This determination is consistent with EPA’s impact analysis from the permitting effort that concluded with the 12/23/2008 PSD Permit.

#### VII. Environmental Justice

The PSD Delegation Agreement between MassDEP and EPA Region 1 includes a requirement for consideration of Environmental Justice (“EJ”) Issues. Specifically, the Delegation Agreement requires that MassDEP identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations, in accordance with Executive Order 12,898 59 Fed. Reg. 7,629 (Feb. 16, 1994).

The Massachusetts Executive Office of Energy & Environmental Affairs (“EOEEA”) has developed a Massachusetts-specific EJ Policy, along with maps of specific EJ areas in Massachusetts. The purpose of Massachusetts EJ Policy is essentially the same as Federal

EJ, which is to reduce the disproportionate share of environmental burdens that have historically been experienced by low income and minority populations, and to pursue environmental improvements for such populations.

Based on the EJ mapping done by EOEEA, NEA Bellingham is not proximate any EJ communities. Therefore, it has been concluded that the proposed permit revisions do not pose a threat to the EJ goals.

#### VIII. Endangered Species Act (“ESA”), National Historic Preservation Act (“NHPA”), and Tribal Consultation

Section 7 of the ESA requires that certain actions such as PSD permits address the protection of endangered species in accordance with the ESA. To comply with the ESA, the United States Fish and Wildlife Service (“FWS”) Department - New England Field Office was consulted at the following web site:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm>

to determine if the proposed revisions to NEA’s PSD permit posed any risk to endangered species in Norfolk County, Massachusetts. Our consultation is consistent with EPA’s determination from the permitting effort that concluded with NEA’s 12/23/2008 PSD Permit.

The website instructs the user to review a list of endangered species by county and determine if an endangered species is located in the county for the permitted facility. Bellingham is in Norfolk County. According to the table on the web site, there are no listed endangered species for Norfolk County. Therefore, it has been concluded that the proposed permit revisions do not pose a threat to any endangered or proposed endangered species or their habitat in the area subject to FWS jurisdiction and that no further ESA impact analysis is required. The web site directed the user to print a letter dated January 1, 2008 and signed by Anthony P. Tur, Endangered Species Specialist for FWS. The letter states that no further review is warranted. The PSD Permit application included a copy of this letter.

The determination of compliance with the requirements of the ESA and the NHPA, as well as Tribal Consultation is the responsibility of EPA Region 1. On August 2, 2012, NEA Bellingham submitted letters to FWS, National Oceanic and Atmospheric Administration Fisheries Service, Massachusetts Historic Commission, the Tribal Historic Preservation Officer and Tribal Environmental Director of the Mashpee Wampanoag Tribe, and the Tribal Historic Preservation Officer and Tribal Environmental Director of the Wampanoag Tribe of Gay Head (Aquinnah). The letters were submitted in accordance with the PSD Delegation Agreement to provide notification to the respective agencies of the requested modifications to the Applicant’s original PSD Permit. On November 7, 2012, NEA Bellingham submitted a letter to EPA Region 1 indicating that it had fulfilled its notification duties in accordance with the PSD Delegation Agreement and requesting EPA Region 1 to issue a determination with respect to its consultation duties under Section IV.H.4. of the PSD Delegation Agreement which states that “In all cases, MassDEP will refrain from issuing any Final PSD Permit until EPA has notified MassDEP that EPA has satisfied its NHPA, ESA, and tribal consultation responsibilities with respect to that Permit.”